# A high gain and wide output swing Folded Cascode dynamic amplifier for low power 1bit Quantization based delta sigma ADCs

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**Abstract**

A high gain and wide output swing dynamic amplifier is proposed for low power single-loop 1-bit quantization based delta sigma ADCs, which require wide output swing for integrator for achieving the required bandwidth and resolution with low power and small area in sensor readout and audio application. A dynamic folded cascode concept is proposed to enlarge the output swing of the conventional cascode dynamic amplifier. Additionally, a novel speed-enhancement technique and a low power common mode detection circuit are proposed to reduce the power consumption of the dynamic amplifier. Under 1.8V power supply in 180nm CMOS technology, the proposed dynamic amplifier achieves 35dB with less than 1dB drop over an output swing of 2.4V. The proposed dynamic amplifier consumes a total power of 16μW at an operating frequency of 4MHz.

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